A72.E675
JACC March 9, 2010
Volume 55, issue 10A

IMAGING AND DIAGNOSTIC TESTING

BIOMARKERS VERSUS CORONARY ARTERY CALCIUM FOR PREDICTION OF INCIDENT CARDIOVASCULAR EVENTS

ACC Poster Contributions
Georgia World Congress Center, Hall B5
Sunday, March 14, 2010, 9:30 a.m.-10:30 a.m.

Session Title: CT Coronary Calcium and Noncoronary CT Applications
Abstract Category: CT Coronary Calcium and Noncoronary CT Applications
Presentation Number: 1041-246

Authors: *Jamal S. Rana, Heidi Gransar, Nathan D. Wong, Alan Rozanski, Sean Hayes, Louise Thompson, John Friedman, Leslee J. Shaw, Daniel S. Berman, Cedars-Sinai Medical Center, Los Angeles, CA*

Background: There is controversy as to whether biomarkers or atherosclerosis screening can best improve cardiovascular disease (CVD) risk prediction over standard risk factors. We sought to examine the incremental usefulness of adding multiple biomarkers versus coronary artery calcium (CAC) for predicting the risk of CVD beyond traditional risk factors.

Methods: The study group comprised of 1,327 aysymptomatic participants (mean±SD age 59±8) with no known coronary heart disease. The mean follow up time was 4.0±0.7 years and the outcome was the combined CVD endpoint of cardiac death, myocardial infarction, stroke, and late revascularization. We investigated whether a combination of biomarkers (C-reactive protein, interleukin-6, myeloperoxidase, B-type natriuretic peptide and plasminogen activator-1) versus CAC improved risk stratification beyond assessment based on established CVD risk factors (age, sex, body mass index, hypertension, smoking, diabetes, hyperlipidemia).

Results: During follow-up, 46 participants in our study had CVD events. In Cox proportional-hazards models adjusted for established risk factors, none of the biomarkers individually or in composite significantly predicted the risk of cardiovascular events, however the presence of any CAC was associated with a hazard ratio (HR) of 5.7 (95% CI 2.0-16.4) and CAC ≥ 400 a HR of 6.5 (3.4-12.5). The C-statistic did not increase significantly when the five biomarkers alone were incorporated into a model with established risk factors (0.74 vs. 0.76, p=0.1), however it did increase significantly when log CAC was incorporated with established risk factors (0.74 vs. 0.84; P<0.01).

Conclusions: Our data suggest that in an asymptomatic population without prevalent CVD, the addition of CAC but not multiple biomarkers,m substantially improves the risk stratification for CVD beyond that of established risk factors.